

These statistics are sufficient to show the character of the work, and we confess that, for our part, we cannot perceive any other ultimate purpose in it than the creation of a supreme contempt in rational persons for such so-called science, and a feeling of hopeless confusion in the minds of students, especially young inquirers.

MISCELLANEOUS.

On two new Types of Choniostomatidæ from the Coasts of France:
Sphæronella microcephala, G. & B., and *Salenskia tuberosa*,
 G. & B. By MM. A. GIARD and J. BONNIER.

We have shown in a previous memoir* that the family Choniostomatidæ, established by Hansen for the single genus *Choniostoma*, ought to include, besides forms which Krøyer and Max Weber partially discovered some time ago, a new genus discovered by us upon a *Mysis* already attacked by an Epicarid, and lastly the enigmatical Copepod *Sphæronella Leuckarti*, so well investigated by Salensky.

Hitherto no crustacean belonging to this family had been met with on the shores of France. Upon the occasion of our note upon *Podascon Dellavallei*, an Epicarid parasite of *Ampelisca diudema*, Costa, M. Chevreux sent us a certain number of specimens of *Ampelisca spinipes*, Boeck, *A. tenuicornis*, Lilljeborg, and *A. spinimana*, Chevreux, collected at Le Croisie, and which he thought were infested by *Podascon*. A careful examination of these Amphipods, which were all females, convinced us that a single specimen of *A. spinimana* bore a *Podascon* belonging to a new species, *Podascon Chevreuxi*, G. & B.

All the other parasites were, not Epicarid Isopods, but Copepods of the family Choniostomatidæ, belonging to two different genera. The parasite of *Ampelisca tenuicornis* is a *Sphæronella* distinct from the Mediterranean species studied by Salensky: we shall designate it *Sphæronella microcephala*. The parasite of *A. spinipes* belongs to a new genus: we shall give it the name of *Salenskia tuberosa*, in honour of the eminent Russian zoologist to whom we owe the first explicit information upon the evolution of the Choniostomatidæ.

These two species of parasites are found surrounded by their numerous sacs of ova in the brood-chambers of the *Ampelisca*, which are rendered barren in consequence of parasitic sterilization (*castration parasitaire*). The brood-lamellæ are often caused to gape widely, allowing grains of sand and other foreign bodies to enter, which never happens when the *Ampeliscæ* are carrying their eggs or are in the normal non-gravid condition.

In spite of the most minute investigation of the four infected individuals, we have been unable to find a single male of *Sphæro-*

* Giard and Bonnier, "Note sur l'*Aspidocia Normani* et la famille des Choniostomatidæ," Bulletin scientifique de la France et de la Belgique, t. xx, 1889, pp. 341-372; four figures in the text, and pls. x. & xi.

nella microcephala. The female differs from *Sphaeronella Leuckarti* in the small size of the cephalic portion when compared with the total mass of the body. The buccal apparatus is more simple. We have distinguished but one pair of mandibles, which, it is true, are very stout, and project by their free extremity in the centre of the sucker. The first pair of maxillipedes is better developed than the second, contrary to what is the case in *S. Leuckarti*. The genital area exhibits a different arrangement. The corneous papillæ are very large and represent the evacuator apertures of two cement-glands. These cement-glands must not be confounded with the colleterial glands which secrete the substance of the ovisacs, and which open in the immediate vicinity of the female aperture.

We have counted as many as nine sacs of ova around a single female. Each sac may contain from sixty to eighty eggs with a very bulky germinal vesicle and a very distinct germinal spot.

Segmentation is epibolic. The endodermic macrospheres contain large fatty globules, analogous to those which are seen in the eggs of many fishes. We have not met with fully-developed embryos.

The genus *Salenskia*, of which but a single specimen has come into our possession, in consequence of the degradation of the adult female, is allied to *Choniostoma* and still more to *Aspidocia*. The body of the female is irregularly pyriform, with a conical buccal region.

All trace of masticatory or locomotory appendages has entirely disappeared. We only find at the head an apparatus for attachment in the shape of an amphidisk or sleeve-link. The genital area is more simple than in *Sphaeronella*. There is nothing in the shape of ornament, except a chitinous hair situated on the inner side of each female aperture.

In the neighbourhood of these apertures we have found three dwarf males. These exhibit a very interesting peculiarity. They have not undergone the regressive metamorphosis which we observe in the case of the males of *Sphaeronella Leuckarti* and *Aspidocia Normani*: they have retained the characteristic shape of the embryos of *Sphaeronella* and *Choniostoma*. Nevertheless the existence of the two enormous spheroidal reservoirs, which are regarded as spermathecae in the case of the males of the other Choniostomatidæ, permits us to believe that they have attained their sexual maturity. In this case therefore we should be confronted with an instance of *progenesis* entirely comparable to that which is exhibited by the Cryptoniscid males of certain Epicaridæ; and the question may be mooted whether, as in the case of certain of these latter, *dissogamy* might not occur in the male sex of *Salenskia*, that is to say, whether, after having performed their function in the larval form, these males, or at least one among them, might not be capable of undergoing the regressive metamorphosis which has been proved to take place in the case of the males of *Aspidocia* and *Sphaeronella Leuckarti*. Perhaps, too, these dwarf males are only complementary males, such as are known in several groups of parasitic Metazoa. The excretory ducts of the spermathecae appeared to us to open in the neighbourhood of the mouth, contrary to what occurs in *Aspidocia*.

We have only observed a single sac of ova belonging to this species and that was in bad condition, so that we are unable to say anything as to its embryogeny. It is probable, however, that the embryos greatly resemble the progenetic males of which we have just spoken.

The co-existence of *Podascon Chevreuxi* and *Podascon Dellavillei* with the Choniostomatidæ mentioned in this note, upon species of the same genus *Ampelisca*, once more raises the problem, to which we have already drawn attention, of a possible ethological relation between the two groups of parasites, Epicaridæ and Choniostomatidæ. From what we know of the habits of *Choniostoma* and *Aspidascia* we are inclined to think that the Epicaridæ open the way *at the present time*, or in certain cases perhaps have opened it *phylogenetically*, to the Choniostomatidæ. But this is a point that demands fresh investigations conducted as far as possible upon the living animals.—*Comptes Rendus*, t. cxvii. no. 23 (September 25, 1893), pp. 446-449.

Who first found Balanoglossus? By the Rev. Canon
NORMAN, M.A., D.C.L., F.R.S., &c.

By a curious coincidence two works have reached me to-day. The first of these is a new volume of the 'Fauna und Flora des Golfes von Neapel,' a magnificent monograph by Dr. D. W. Spengel upon the Enteropneusta (Hemichorda, which includes *Balanoglossus* and allies). The second is 'Atlante di Figure sceverate dalle tavole incise e da disegni originali illustranti di Memorie postume di F. Cavolini pubblicate per cura ed a spese di S. D. Chiaje'; I have only been able to procure the plates of this work. From Carus and Engelmann's *Bibl. Zool.* p. 121, I find that there should be 344 pages and that the date is 1853. This work is by "Fil. Cavolini," the Italian naturalist who wrote at the end of the last century. The plates seem to be of the character of that period, and the last is apparently intended to illustrate a paper on the great eruption of Vesuvius which overwhelmed the houses of the 10,000 inhabitants of the town of Torre del Greco in 1794. If these plates date from the end of the last or from the beginning of the present century, then Cavolini was the first to notice and figure, and, perhaps, describe, the genus *Balanoglossus*. On pl. xiv. fig. 4 will be found a very good illustration of a form which seems most closely to resemble *B. Kowalevskii*, among those figured by Spengel. Spengel makes no allusion to Cavolini's work in his Bibliography, and gives Eschscholtz as the earliest discoverer of a species of the group (*Ptycolera flava*, 1825). Eschscholtz's figure is a very inferior one to that of Cavolini.

Probably there is a copy of Cavolini's work in the Brit. Mus. or other library. Will some one clear this matter up? The plates, moreover, in Cavolini appear, from their different sizes and the double numbers on them, to have illustrated previously published papers, here brought together; but I cannot find any such papers referred to in *Bibl. Zool.*

Burnmoor Rectory,
Dec. 16, 1893.